General Aviation Manufacturers Association

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Docket Management System
U.S. Department of Transportation
Room Plaza 401
400 Seventh Street SW
Washington, DC 20590-0001

RE: Docket No. FAA-2003-14449; Notice No. 03-03, Enhanced Flight Vision System

Dear Sir:

The General Aviation Manufacturers Association (GAMA) welcomes the FAA's foresight in drafting a rule that would enable operators to introduce equipment into the cockpit that potentially could achieve significant safety and operational advantage to the user. We also commend the FAA for proposing a rule where the use of EFVS is voluntary thereby not forcing cost on the operator, but enabling the operator to select to use EFVS in order to achieve both better safety and operational benefits for their aircraft. We believe that this rule can significantly address the Safer Skies Weather JSAT Recommendation 5, which goal is to "Streamline [the] approval processes to encourage installation of equipment that enables pilots to retain control in IMC…"

However, GAMA believes that the use of Enhanced Flight Vision Systems can achieve even greater safety benefit would the following comments be considered.

1. In order to promote continued development of safety enhancing systems—beyond currently certified EFVS—it is critical that the FAA publishes a rule which is <u>performance based</u> only. As such GAMA asks for the following considerations:

    a. We strongly disagree with setting specific performance criteria within an operational rule under **91.175(l)(4) At 100 feet above the touchdown zone elevation of the runway…** In order to encourage development of EFVS we recommend the language read **(4) At the minimum altitude for which the EFVS was certified above the touchdown zone elevation of the runway…** Thereby, limitations or improvements emerging in future systems will not be restricted by operational rules. Guidelines for altitude certification should also appropriately be provided to ACOs by FAA Aircraft Certification Service.

    b. When requiring visual reference for the approach below DA, DH or MDA, the proposed rule requires the pilot identify – **91.175(l)(3)** and **(4)(i) The lights or**

markings of the threshold; or (ii) The lights or markings of the touchdown zone; GAMA would instead recommend that the currently accepted criteria in 91.175(c)(3)(i) through (x) be adapted for the purpose of training and operation consistency when flying approaches.

c. Under Part 1.1 General Definitions the proposed language reads that **Enhanced flight vision system (EFVS) means an electronic means to provide a display of the forward external scene topography… through the use of imaging sensors, such as a forward looking infrared, millimeter wave radiometry, millimeter wave radar, low light level image intensifying.** We would instead recommend the following language: **Enhanced flight vision system (EFVS) means an electronic means to provide a display of the forward external scene topography… through the use of sensors that enhance the electromagnetic spectrum.** Thereby development of potential new technologies will not be inhibited by the lack of regulation and future certification guidelines.

2. GAMA would encourage the FAA to expand the language provided in the NPRM to specify the permitted use of EFVS during CAT II and III ILS approaches. As proposed now, the rule does not go into how an operator may use an EFVS while performing a CAT II/III approach; even though the FAA recognizes that this equipment can provide the pilot with increased awareness during unfavorable weather conditions. GAMA believes that further clarifying the use of EFVS during CAT II/III approaches would provide safety benefits including required equipment certification.

3. While we understand the intent of 91.175(m) as proposed, we disagree with its inclusion under Part 91 – Air Traffic and General Operating Rules. Part 91 provides rules of operation and we encourage 91.175(m) language to instead be included under Part 25 and 23 or as applicable. However, based on the language provided GAMA would like the following comments recognized:

   a. The final rule should not limit the display of information to the a "head-up display" (see 91.175(m)(2) language), but instead the presentation should be done within the primary field of view on a head-up-display or other certified display thereby possibly providing more advanced imagery and better fidelity to the pilot. During an instrument approach—such as an ILS—the pilot will primarily be focused on instrumentation on the cockpit panel (i.e., head-down) which would suggest that displaying the imagery from the enhanced flight vision system within this same "primary field of view" as opposed to limiting the display to a HUD would achieve the same or higher situational awareness. In order to not stifle development of future enhanced flight vision systems and still achieving comparable safety, GAMA recommends that the following change to 91.175(m)(2) or included in appropriate section: **"(2)...are presented on head-up display or other certified display within the pilot's primary field of view and clearly visible to the pilot..."** When transitioning from "enhanced flight visibility" to "flight visibility" the pilot would only make a slight change in focus; very similar to the transition taking place when conducting currently regulated approaches down to low minimums. It should also be recognized that non-HUD systems are less costly, which would provide access to the safety benefit of an EFVS to more operators as compared to HUD systems.

4. The NPRM should consider addressing 135.225(b) and permit pilots to begin the final approach segment of an instrument approach procedure even though the weather reported is below the landing minimums. Aircraft equipped with EFVS should be permitted to begin the final approach segment provided that the minimums meet the certification requirements of their EFVS. This is especially applicable to Part 135 operators who inherently use airports where the weather reporting is less accurate.

5. In its current format the NPRM does not adequately address the use of EFVS for 121, 125, and 135. This in spite the FAA's recognition of the technologies inherent safety benefits. GAMA advocates that the FAA provide language in line with proposed language for 91 that would enable all operators to take advantage of this technology.

6. GAMA also has a strong interest in this NPRM's applicability to 91.1039 as proposed under "subpart K". Our belief is that the community regulated under subpart K would achieve significant safety benefits and operational efficiencies given access to the full use of EFVS.

7. Finally, we would encourage use of the terminology in AC 120-29A.

In conclusion, GAMA's concern is that the EFVS is not proposed as a performance based rule. Furthermore, GAMA would strongly encourage FAA Aircraft Certification Service to propose language for certification of Enhanced Flight Vision System. This is something that needs to be expedited in order to effectively introduce this safety enhancing system in more aircraft. With EFVS a new type of technology, GAMA would also encourage FAA to provide guidelines for installing the equipment into aircraft to Aircraft Certification Offices for the purpose of streamlining the process.

GAMA represents over 50 manufacturers of airplanes, engines and equipment for the general aviation industry. Thank you for considering our views and please disregard our earlier request for extension to the comment period.

/s/ Jens C. Hennig
Manager of Operations
General Aviation Manufacturers Association